

## REMARKS

Claims 1-15 are pending. Claims 2 and 12 have been amended to correct minor errors. Reexamination and reconsideration in view of the following remarks are respectfully requested.

### Claim Rejections – 35 U.S.C. § 103

Claims 1-15 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,802,218 (“Brailean”) in view of U.S. Patent No. 6,005,952 (“Klippel”).

In the present Office action, the Examiner indicates that the arguments filed on September 11, 2003 are not persuasive. The Examiner asserts that Klippel discloses a method and apparatus for active attenuation of sound by measuring sound, generating a signal in precise anti-phase in a controller, and injecting a canceling sound through a loudspeaker. The Examiner also asserts that the method and apparatus of Klippel can be applied to linear or nonlinear filters. In addition, the Examiner indicates that non-obviousness cannot be shown by attacking a reference individually where a rejection is based on a combination of references. In support of this last contention, the Examiner cites *In Re Keller*, 642 F.2d. 413 (CCPA 1981). According to the Office action, the Examiner cites Klippel to “establish that it would have been obvious to the artisan to multiply together three filtered signals to produce an output **video** signal.” Office action dated August 9, 2004, page 3 (emphasis added). The Office action goes on to state that

[t]he multiplying together [of] the three filtered signals to produce an output **video** signal as a result as taught by Klippel has similar application whether the signal is [an] audio or **video** signal. [And, the] reference must be considered not only for what it expressly teaches, but also for what it fairly suggests. *In re Burckel*, (citation omitted). The artisan is presumed to know something more about the art apart from what the reference literally disclose. *In re Jacoby*, (citation omitted). The Examiner believes that the artisan would have recognized the obviousness of multiplying together the three filtered signals to produce an output signal.

Office action dated August 9, 2004, page 3. The action also indicates that another object of the Klippel reference is to realize an active attenuation system for high amplitude **sound** comprising a minimum of elements and requiring a minimum of processing capacity and a digital signal processor to keep the cost of the system low. *Id.* (emphasis added). The Examiner asserts that

one of ordinary skill in the art would have no difficulty in combining the references as proposed.

*Id.*

With due respect, the Applicant disagrees.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior-art reference (or references when combined) must teach or suggest all the claim limitations. M.P.E.P. § 2143. Furthermore, in order to rely on a reference as a basis for rejection of an Applicant's invention, the reference must either be in the field of the Applicant's endeavour or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned. M.P.E.P. § 2141.01(a). The Office's rejections do not meet the above criteria.

With respect to the initial comments of the Office, Applicant notes that the Klippel reference is first characterized as teaching, in essence, a method and apparatus for active attenuation in a loud speaker by generating a signal in precise anti-phase, and injecting a canceling **sound** through a loudspeaker. The Office then concludes (in what Applicant believes to be a leap of logic) that the teachings of Klippel are applicable to applications in **video** signal processing. A person of ordinary skill in the art is asserted as making the proposed combination because there is motivation to keep processing requirements and costs low. Finally, the Office dismisses the Applicant's arguments as being deficient because they allegedly attack the references individually.

As will be addressed in further detail below, there is simply no reason why one of ordinary skill in the art would combine the teachings of a reference related to audio and loudspeaker technology with the teachings of a reference related to video signal processing. Regarding the proposed motivation to combine the reference, in essence, the Office asserts that one of ordinary skill would be motivated to combine the references in order to create a processing system that is faster (low processing requirements) and cheaper. Yet, making a technology faster and cheaper could be applied to almost any situation as almost no rational person enjoys things that are slower and more expensive. Thus, the Office provides no

legitimate motivation for combining the references. Finally, the criticism of Applicant's arguments as attacking the references individually is unfounded. In *In re Keller*, the Board criticized an Affidavit submitted by a patent applicant because the affiant did not consider all of the references used in support of the obviousness rejection at issue. Clearly, Applicant addressed all of the references cited in the present obviousness rejection. For example, in the prior response, the Applicant stated "There is no reason on the face of either document or otherwise, why the documents should be combined." Clearly, Applicant was and is not attacking the references separately. Moreover, it was and it still is Applicant's contention that one of ordinary skill in the art would not and has no motivation to combine a reference related to audio signal processing with a reference related to video signal processing and that the motivation provided by the Office to make such as combination is deficient.

As noted in Applicant's previous response, the portion of Brailean relied upon by the Examiner (Fig. 5, Col. 6, lines 5-53) discloses a four tap linear filter providing a weighted sum of pixels in which the weightings (508) applied to each of the input pixels (504) are controllable. As noted by the Examiner, Brailean fails to disclose multiplication together of three linearly filtered signals to produce an improved video output.

As should be evident - and as is set out in the present specification - the signal processing effect of multiplying signals together is fundamentally different from the effect of adding together signals each of which has been multiplied by a coefficient.

In Klippel, there is disclosed a method and apparatus for the active attenuation of sound by measuring sound, generating a signal in precise anti-phase in a controller and injecting a canceling sound through a loudspeaker. Klippel is particularly concerned with the non-linear behavior of that controller, necessary to model the non-linear behavior of sound propagation and, thus, cancel sound more effectively. There is no mention of video signals.

Active noise cancellation is a highly specialized field and there would be no motive for one of ordinary skill in the art to look to Klippel for assistance in solving a problem in suppressing artifacts in video. For example, audio signal processing technologies such as the audio portion of the MPEG standard (known as MP3) are premised on relatively complex psycho-acoustic modeling. This modeling is based upon the study of how the human ear senses and the brain processes sound waves propagating through air. Video signal processing

technologies such as MPEG and others are premised on quite different models. These models are based upon how the human eye and brain perceive and process images and motion. It is highly unlikely that one of ordinary skill in the art, when faced with a problem in video signal processing, would look for a solution in the field of audio signal processing and, in particular, audio noise cancellation. Hearing and seeing are fundamentally different. That's why, for example, the MPEG standard treats the two types of signals differently. On the other hand, the Office lumps all signals and signal processing together, which is untenable in logic, science, and the law. So, while an artisan is presumed to know something more about the art apart from what references literally disclose, in this case the artisan knows that audio and video processing have differences. Thus, the fact that Klippel provides a solution for noise problems in loudspeakers does not lead one to apply that solution, assuming that the solution could be successfully applied, to artifacts generated in video output.

A further critical issue concerns the non-linear behavior which is central to the function of Klippel. The structure disclosed in Figure 15, to which the Examiner refers, is stated to show a factorable polynomial filter which can be used to realize the filters 218 and 220 of Figure 10. Both those filters 218 and 220 are clearly stated to be non-linear filters and it is indeed of the essence of Klippel that they are non-linear.

One of ordinary skill in the art would not consider the structure of Figure 15 of Klippel to be a low cost alternative to the Figure 5 structure of Brailean. It is not at all apparent how a structure such as that of Figure 15 of Klippel might be incorporated in Brailean and - even if it were - the function performed would change fundamentally.

In sum, the proposed obviousness rejection is, with due respect, deficient. The expressed motive for a combination of Klippel and Brailean (that of a reduction in cost) is without basis. The functions of the circuit and its allegedly cheaper equivalent are in fact totally different. Moreover, the fields of Klippel and Brailean are so different that no one concerned with improving the arrangement of Brailean would consider it obvious to look at Klippel. Lastly, even if use of the arrangement shown in Klippel were contemplated, its inherent non-linear function would make it unsuitable for replacing the functionality as taught by Brailean.

It is respectfully submitted that the claimed subject matter is not anticipated or rendered obvious by Klippel in view of Brailean. It is further submitted that the claimed subject matter is

not rendered obvious by Klipper in combination with any teaching in the field of video signal processing.

The rejections raised against other claims are believed to be moot in view of the foregoing. The Applicant reserves the right to supplement this filing with affidavits and other evidence.

Applicant respectfully requests that a timely Notice of Allowance be issued in this case and that the Examiner telephone the attorneys of record in the event a telephone discussion would be helpful in advancing the prosecution of the present application.

Respectfully submitted,



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